



Source Water Assessment Program (SWAP) Report For Granville Center Water Company

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

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Table 1: Public Water System (PWS) Information

PWS NAME	Granville Center Water Company
PWS Address	P.O. Box 154
City/Town	Granville, Massachusetts
PWS ID Number	1112000
Local Contact	John Stevenson, President
Phone Number	914-234-7459

Well Name	Source ID#	Zone I (in feet)	IWPA (in feet)	Source Susceptibility
Well #1	1112000-02G	304	912	Moderate
Cistern	1112000-03G	304	912	High

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The Granville Center Water Company serves a small rural community supplying 37 residential and municipal connections that all utilize on-site septic disposal. The system consists of one bedrock well that can pump directly into the distribution system and to the storage cistern. The well (02G) for Granville Center Water Company is an 8-inch diameter bedrock well drilled to a depth of at least 150 feet (reported to be 210 feet) in 1950, located off of Blandford Road. The well has a Zone I of 304 feet and an Interim Wellhead Protection Area (IWPA) of 912 feet; both are based on metered water usage data. The Zone I is the protected area immediately around the wellhead; the IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be significantly

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

larger or smaller than the IWPA. The public water system for the facility also includes a spring (01G), an emergency source that has been physically disconnected from the system and is located approximately 20 feet from the storage cistern. This report does not address the emergency spring source (01G). The cistern (03G) is a partially lined, belowground storage cistern; under certain hydraulic conditions, groundwater is contributed to the cistern. The DEP and water supplier are investigating methods of lining the cistern in order to eliminate groundwater contribution so that in the future, the cistern will act solely as a storage tank.

The well and cistern are located in an area USGS has mapped as a till and bedrock. There is no evidence of thick overburden in the vicinity. The bedrock geologic mapping identifies the bedrock as heterogeneous layering of amphibolite, gneiss, and schist with the thickest layers in the gneiss fraction. This type of aquifer has a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA. Chlorine is added to the water at the wellhead serving the facility as a disinfectant. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Nonconforming use in Zone I (02G)**
2. **Low Density Housing**
3. **Electrical Transformers**

The overall ranking of susceptibility to contamination for the well is moderate based on the presence of at least one moderate threat land use or activity in the IWPA, as seen in Table 2. The cistern is not lined and is in close proximity to natural springs and surface water drainage and is therefore potentially susceptible to influence from surface water. The cistern has not been determined to be groundwater under the influence of surface water. Unless the cistern is lined additional water quality testing may be required. Based on that additional potential threat, the overall ranking of susceptibility to contamination for the cistern is high.

1. **Nonconforming use in Zone I-** The Zone I for Well #1 is nonconforming with respect to DEP land use restrictions, that allow only water supply related activities in the

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Low density housing with parking and septic systems; roadways	Well	Cistern and Well	Moderate	Prohibit parking along road, see septic systems brochure attached
Electrical Transformers	Well	Well	Moderate	Request information regarding PCB in MODF from your electric company

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I. The public water supplier does not own and/or control all land encompassed by the Zone I of the well. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Do not conduct any additional activities within the Zone I. Contact MA DEP prior to conducting any activities within Zone I.
- ✓ Prepare an emergency response plan for responding to an accidental release.

2. Low Density Housing -- The Zone I for Well #1 contains Blandford Road and three residences with associated parking and septic systems. The most significant threats from a septic system are from lack of maintenance and improper disposal of non-sanitary waste. Another potential threat from residential users is mismanagement of household waste.

Recommendations:

- ✓ Provide residents with information about proper maintenance and disposal practices for septic systems. Septic system components should be located, inspected, and maintained on a regular basis. Refer to the attachments for more information regarding septic systems.
- ✓ Avoid septic tank cleaners, especially those with acids and solvents.
- ✓ Monitor roadside for spills and leaks.
- ✓ Encourage residents to utilize local household hazardous waste collection days.
- ✓ Supply residents with information about BMPs for household hazardous waste management and lawn care.

3. Electrical Transformer -- Electrical transformers contain Mineral Oil Dielectric Fluids (MODF). Although the use of PCBs is banned in new transformers, historically, PCBs were used in some transformers.

Recommendations:

- ✓ Contact the local utility to determine if the transformers contain PCBs. If PCBs are present, urge their immediate replacement.
- ✓ Keep the area near the transformers free of tree limbs that could endanger the transformer in a storm.

Other activities noted within the IWPA are aquatic wildlife and pet wastes. These are listed as low potential threats to ground water sources and are of minimal concern.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Granville Center Water Company is commended for discontinuing the use of the spring (01G) as a primary source. Granville Center Water Company should review and adopt the key recommendations above and the following:

Priority Recommendations:

- V Line the cistern as expeditiously as possible to eliminate all potential surface infiltration and groundwater contribution.
- V Consider well relocation of Well #1 if Zone I threats cannot be mitigated.

Zone I:

- V Keep non-water supply activities out of the Zone I.
- V Prohibit public access to the well and pump house by locking facilities, gating access roads, and posting signs.
- V Conduct regular inspections of the Zone I. Look for illegal dumping, evidence of vandalism; check any above ground tanks for leaks, etc.

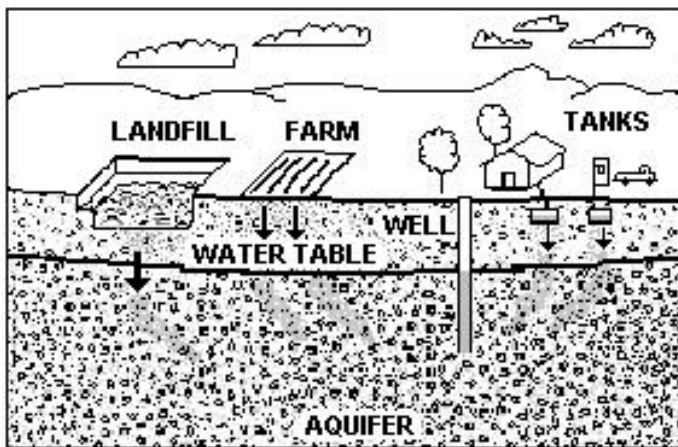


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact Catherine V. Skiba of the Western Regional Office at 413-755-2119 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been made available to the public water supplier, town boards, and the local media.

- V If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.
- V Do not use or store pesticides, fertilizers or road salt within the Zone I.

Training and Education:

- V Train staff on proper hazardous material use, disposal, emergency response, and best management practices. Post labels as appropriate on raw materials and hazardous waste.
- V Post drinking water protection area signs at key visibility locations.

Facilities Management:

- V Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials.
- V For utility transformers that may contain PCBs, contact the utility to determine if PCBs have been replaced. If PCBs are present, urge their immediate replacement. Keep the area near the transformer free of tree limbs that could endanger the transformer in a storm.

Planning:

- V Work with local officials in Granville to develop Aquifer Protection District Bylaws and to assist you in improving protection to the well and IWPA.
- V Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- V Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.
- V Consider obtaining a conservation restriction for any land within Zone I that cannot be purchased.

Funding:

The Department's Wellhead Protection Grant Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet. Please note that each program year, on or about May 1 the Department posts a new Request for Response (RFR), grant application form. Generally, the applications are due on or about June 30. Other funding opportunities are described in "Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation" at <http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf>.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Fact sheet
- Your Septic System Brochure
- Pesticide Use Fact sheet
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form

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